# CHAPTER 2
# PROPOSED ACTION AND ALTERNATIVES

This chapter discusses Tucson Electric Power Company's (TEP) proposed action and alternatives for building a 345-kV double circuit transmission line from Sahuarita to Nogales, Arizona, continuing to the U.S.-Mexico border. The proposed project includes construction of a new substation (Gateway Substation) in Nogales, expansion of the existing South Substation in Sahuarita, and construction of the associated transmission line. This chapter describes the process for identifying and evaluating alternatives, provides a detailed description of each alternative, including the No Action Alternative, and describes construction logistics. This chapter also presents a comparison of the expected impacts from alternatives based on the analysis in Chapter 4, and discusses measures to mitigate potential impacts.

## 2.1 ALTERNATIVES

The alternatives developed for the proposed project are alternative routes to interconnect TEP's South Substation with the proposed Gateway Substation. TEP's evaluation of interconnection schemes resulted in the development of three potentially viable corridors for transmission interconnection in southern Arizona. One of these, the Eastern Corridor, was eliminated from further analysis as a reasonable alternative in this Environmental Impact Statement (EIS), as explained in Section 2.1.4. An additional study corridor, the Crossover Corridor, was included for analysis in this EIS based on public and tribal input received during the public scoping period and tribal consultations. Thus, the three alternatives addressed in this EIS are the Western Corridor (the applicant's Preferred Alternative), the Central Corridor, and the Crossover Corridor.

To facilitate a thorough, specific evaluation of the existing potentially affected environment and of potential environmental impacts of the proposed project, TEP agreed to define a 0.25-mi (0.40-km) wide study corridor for each alternative, within which the 125-ft (38-m) transmission line right-of-way (ROW) would be sited. The precise siting of the transmission line ROW within the selected study corridor would be based on further engineering evaluation and mitigation of potential impacts on cultural, paleontological, visual, and ecological resources, including provisions of mitigation agreements with Federal, state, and local agencies as listed in Chapter 9, following the issuance of Records of Decision (RODs) by the lead and cooperating agencies.

**TEP Corridor Identification Process.** TEP has provided the following description of their corridor and substation location identification process:

> Commencing in 1995, TEP conducted a study to identify potential alternative routes from the U.S.-Mexico border to various tie points on TEP's utility grid. The first phase of this study was to develop an environmental screen to identify areas of concern and define those areas where the potential impacts may be minimal. TEP established a set of principles that was utilized to establish potential transmission line alignments. The principles were:
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> - Stay within existing utility corridors where possible and to the extent practicable where doing so would not be detrimental to environmental and cultural factors.
> - Parallel existing infrastructures such as roads, trails and developed ROWs.
> - Follow existing legal or jurisdictional boundaries where possible. Boundaries considered were ownership or parcel boundaries; section, half section and quarter section lines, land grants, patented mining claims, and boundaries of cities, towns, or communities.
> - Avoid sensitive or regulatory areas where possible. Areas considered were known habitat of threatened or endangered species, floodplains and regulated water courses, wilderness or conservation areas, known cultural or historical sites, and visual resources.
> - Avoid the viewshed of the most concentrated residential areas.

TEP evaluated potential transmission line alignments on the following factors:

- The feasibility of construction and the cost. Included were environmental costs relating to the potential impacts and potential mitigation, the technical feasibility of constructing the transmission line, the construction costs, and the ability to acquire the necessary ROW.
- The ability to acquire all regulatory permits.
- The ability to meet TEP's purpose and need, including providing sufficient electric power reliability for Nogales, Arizona.

The routing of the transmission line was constrained by a need to connect to the existing South Substation at the northern end of the project.

For the proposed Gateway Substation, TEP initially considered the general area of the City of Nogales. TEP chose the area west of Interstate 19 (I-19) due to the dense development within the city and to avoid an unnecessary crossing of a major roadway (I-19). Topography limited the choices on the western side of I-19 to two locations. The first location (southern site) was located adjacent to a wash that would have been impacted by the grading necessary to level the site for construction. TEP selected the second site, the proposed Gateway Substation site, because grading activities would not impact any washes or associated natural resources.

Using these principles, TEP identified three alternative corridors, as described in Sections 2.1.1 and 2.1.2, and the Eastern Corridor described in Section 2.1.4. The three corridors overlap each other in certain segments. Refer to Figures 1.1–4 and 2.1–4 for an overview map of the three corridors. Figures 2.1–1, 2.1–2, and 2.1–3 show a close-up view of the Western, Central, and Crossover Corridors as they pass through Sahuarita and Green Valley, Amado, and near Nogales, respectively. Section 2.3 contains a comparison of the alternatives based on the analysis in Chapter 4.

The expansion to the existing South Substation, and the construction of the Gateway Substation (and fiber-optic regeneration site) would be the same for each of the three proposed corridors, as described in Section 2.2.1. The three 3-acre (1.2-ha) construction staging areas and the 80-acre (32-ha) temporary laydown yard would also be the same for each of the three proposed corridors, as described in Section 2.2.3, Construction Yard and Material Handling Sites. The proposed fiber-optic wires would contain at least 48 fibers each (TEP 2003).

### 2.1.1 Western Corridor

The Western Corridor, DOE's and TEP's Preferred Alternative, extends for an estimated 65.7 mi (105 km), from the South Substation to the U.S.-Mexico border, including 9.3 mi (15.0 km) that follows or crosses the El Paso Natural Gas Company (EPNG) pipeline ROW. The length of the Western Corridor within the Coronado National Forest is 29.5 mi (47.5 km), and an estimated 1.25 mi (2.01 km) on Bureau of Land Management (BLM) land. The Western Corridor would require an estimated 429 support structures (monopoles or lattice towers), including an estimated 191 within the Coronado National Forest and 8 on BLM land. Table 4.1–1 lists the estimated areas of land that would be displaced by structures and structure construction sites. TEP would use existing utility maintenance roads, ranch access roads, and, where no access currently exist, new access ways, as described in Section 4.12, Transportation. Approximately 20 mi (32 km) of new temporary roads would be built for construction of the Western Corridor on the Coronado National Forest (URS 2003a); spur roads off existing access roads to adjacent TEP transmission lines would provide project access on BLM land (see Figure 3.1–1, Existing Utility

Infrastructure). Transmission line tensioning and pulling and fiber-optic splicing sites would also temporarily disturb land, as described in Section 2.2.3, Transmission Line Construction. These sites would range from 0.5 to 1.5 acres (0.2 to 0.6 ha). There would be an estimated 12 sites outside of national forest lands occupying a total of 18 acres (7 ha), and an estimated 14 sites on the Coronado National Forest occupying a total of 10.5 acres (4.2 ha). The total new temporary area of disturbance on the Coronado National Forest during construction of the Western Corridor would be an estimated 197 acres (79.7 ha) (URS 2003a).

Following construction, TEP would close roads not required for project maintenance and would limit access to maintenance roads, in accordance with agreements with land owners or managers (for example, BLM or U.S. Department of Agriculture Forest Service [USFS]). On national forest land, the proposed project would not affect the existing road density because TEP is currently working with USFS to identify existing roads for closure, such that 1.0 mi (1.6 km) of existing road would be closed for every 1.0 mi (1.6 km) of proposed road to be used for project maintenance (see Section 4.12, Transportation). The maintenance access required by TEP would be limited to roads leading to selected structures, rather than a single cleared ROW leading to the U.S.-Mexico border. Transmission line tensioning and pulling sites, fiber-optic splicing sites, and construction yard areas would be cleared of construction-related facilities and materials within 6 months of the project becoming fully operational and the areas would be restored in accordance with agreements with land owners or managers.

The Western Corridor, together with the Central and Crossover Corridors, exits the TEP South Substation located within the incorporated area of the Town of Sahuarita and proceeds westerly for 1.0 mi (1.6 km) before turning south for 1.5 mi (2.4 km). The corridors turn west across I-19 and continues through Pima County to the southwest, crossing an estimated 1.25 mi (2.01 km) of Federal lands managed by BLM parallel to two existing TEP transmission lines (138-kV and 345-kV). All corridors turn south and follow on the east side of the EPNG pipeline ROW for an estimated 5.8 mi (9.3 km), passing just east of the existing TEP Cyprus Sierrita Substation.

The Western and Crossover Corridors continue south past the Cyprus Sierrita Substation, then separate from the Central Corridor, continuing southwest and south and enter Santa Cruz County after approximately 10 mi (16 km). The Western and Crossover Corridors enter the Coronado National Forest 6.0 mi (9.7 km) south of the Santa Cruz County line. Where the Crossover Corridor turns east at Peck Canyon, the Western Corridor continues south along the west side of the Tumacacori and Atascosa Mountains, then meets and runs along the south side of Ruby Road as it turns gradually east, north of the Pajarita Wilderness. The Western Corridor continues south of Ruby Road then intersects the EPNG gas pipeline ROW and the Central and Crossover Corridors.

The Western Corridor, together with the Central and Crossover Corridors, continues through the national forest land, paralleling the EPNG pipeline ROW to the southeast for several miles to the Coronado National Forest boundary. The proposed corridors exit the national forest land onto private land and proceed 0.5 mi (0.8 km) east to the Gateway Substation. From the Gateway Substation, the proposed corridors return to the west through private land then turn south to parallel the Coronado National Forest boundary. The proposed corridors meet the U.S.-Mexico border approximately 3,300 ft (1,006 m) west of Arizona State Highway 189 in Nogales, Arizona.

### 2.1.2 Central Corridor

The Central Corridor extends for an estimated 57.1 mi (91.9 km), from the South Substation to the U.S.-Mexico border, including 43.2 mi (69.5 km) that follows or crosses the EPNG pipeline ROW. The estimated length of the Central Corridor within the Coronado National Forest is 15.1 mi (24.3 km), and 1.25 mi (2.01 km) on BLM land. The Central Corridor would require an estimated 373 support structures,

including an estimated 102 within the Coronado National Forest and 8 on BLM land. Table 4.1–1 lists the estimated areas of land that would be displaced by structures and structure construction sites. TEP would use existing access where feasible as described for the Western Corridor. An estimated 13.8 mi (22.2 km) of temporary new roads would be built for construction of the Central Corridor on the Coronado National Forest (URS 2003a); spur roads off existing access roads to adjacent TEP transmission lines would provide project access on BLM land. Transmission line tensioning and pulling and fiber-optic splicing sites would also temporarily disturb land, as described in Section 2.2.3, Transmission Line Construction. These sites would range from 0.5 to 1.5 acres (0.2 to 0.6 ha). There would be an estimated 14 sites outside of national forest lands occupying a total of 21 acres (8.5 ha), and an estimated 7 sites on the Coronado National Forest occupying a total of 3.3 acres (1.3 ha). The total new temporary area of disturbance on the Coronado National Forest during construction of the Central Corridor would be an estimated 105 acres (42.5 ha) (URS 2003a).

Following construction, TEP would close new roads, construction areas, and existing roads not required for project maintenance, in accordance with agreements with land owners or managers, as described for the Western Corridor. Transmission line tensioning and pulling sites, fiber-optic splicing sites, and construction yard areas would be cleared within 6 months of the project becoming fully operational and the areas would be restored in accordance with agreements with land owners or managers.

The Central Corridor follows the same route as the Western and Crossover Corridors from the South Substation in Sahuarita to approximately 3 mi (4.8 km) south of the existing TEP Cyprus Sierrita Substation. Refer to Section 2.1.1, Western Corridor, for a description of this common segment. The Central Corridor separates from the Western and Crossover Corridors south of the TEP Cyprus Sierrita Substation, continuing to follow or cross the EPNG pipeline ROW to the south.

The Central Corridor approaches to within approximately 1.0 mi (1.6 km) west of I-19, passing Amado, Tubac, and Tumacacori. The Central Corridor continues approximately 2.0 mi (3.2 km) south of Tumacacori then enters the Coronado National Forest, following the EPNG pipeline ROW. The Central Corridor centerline is an estimated 0.5 mi (0.8 km) from the EPNG pipeline ROW for an estimated 1.9 mi (3.1 km) and avoids the USFS inventoried roadless area (IRA) as shown in Figure 3.1–1. The Central Corridor passes along the eastern edge of the Tumacacori and Atascosa Mountains, crosses Ruby Road, and reaches a point northwest of the Gateway Substation where it rejoins the Western Corridor (see Figure 1.1–4).

The Central Corridor is identical to the Western and Crossover Corridors from the point where they join in the Coronado National Forest to the Gateway Substation and the U.S.-Mexico border. Refer to Section 2.1.1, Western Corridor, for a description of this common segment.

### 2.1.3 Crossover Corridor

An additional study corridor, the Crossover Corridor, was included for analysis in this EIS based on public and tribal input received during the public scoping period and tribal consultations. The Crossover Corridor extends for an estimated 65.2 mi (105 km), from the South Substation to the U.S.-Mexico border. The estimated length of the Crossover Corridor within the Coronado National Forest is 29.3 mi (47.2 km) and 1.25 mi (2.01 km) on BLM land. The Crossover Corridor would follow or cross the EPNG pipeline for 17 mi (27.4 km). The Crossover Corridor would require an estimated 431 support structures, including 196 within the Coronado National Forest and 8 on BLM land. Table 4.1–1 lists the estimated areas of land that would be displaced by structures and structure construction sites. TEP would use existing access where feasible as described for the Western Corridor. An estimated 20.7 mi (33.3 km) of temporary new roads would be built for construction of the Crossover Corridor on the Coronado National Forest (URS 2003a); spur roads off existing access roads to adjacent TEP transmission lines would

provide project access on BLM land. These sites and fiber-optic splicing sites would also temporarily disturb land, as described in Section 2.2.3, Transmission Line Construction. These sites would range from 0.5 to 1.5 acres (0.2 to 0.6 ha). There would be an estimated 12 sites outside of national forest lands occupying a total of 18 acres (7 ha), and an estimated 12 sites on the Coronado National Forest occupying a total of 7.6 acres (3.1 ha). The total new temporary area of disturbance on the Coronado National Forest during construction of the Crossover Corridor would be an estimated 238 acres (96.3 ha) (URS 2003a).

Following construction, TEP would close new roads, construction areas, and existing roads not required for project maintenance, in accordance with agreements with land owners or managers, as described for the Western Corridor. Transmission line tensioning and pulling sites, fiber-optic splicing sites, and construction yard areas would be cleared within 6 months of the project becoming fully operational and the areas would be restored in accordance with agreements with land owners or managers.

The Crossover Corridor is identical to the Western and Central Corridors from where it exits the TEP South Substation in Sahuarita to where it separates from the Western and Central Corridors in the Coronado National Forest. Refer to Section 2.1.2, Western Corridor, for a description of this common segment.

When the Crossover Corridor separates from the Western Corridor, it turns east through Peck Canyon for an estimated 7 mi (11.3 km). The Crossover Corridor joins the Central Corridor and the EPNG pipeline ROW upon exiting Peck Canyon on the east side of the Tumacacori Mountains. The Crossover Corridor is identical to the Western and Central Corridors from the point where they rejoin in the Coronado National Forest to the Gateway Substation and the U.S.-Mexico border. Refer to Section 2.1.1, Western Corridor, for a discussion of this common segment.

### 2.1.4 Alternatives Considered But Eliminated From Further Analysis

Based on TEP's alternative identification process, stakeholder input, and consideration by U.S. Department of Energy (DOE) and the cooperating agencies, the following alternatives, as shown in Figure 2.1–4 were eliminated from further analysis. Figure 2.1–4 also shows the Public Service Company of New Mexico's (PNM's) proposed transmission line corridors, for which PNM has applied to DOE for a Presidential Permit. The potential cumulative impacts of TEP's proposed project and PNM's proposed project are addressed in Chapter 5, Cumulative Impacts.

**Eastern Corridor.** The Eastern Corridor extends for an estimated 60.3 mi (97.0 km) from the South Substation to the international border, including an estimated 12.4 mi (20.0 km) within the Coronado National Forest. The Eastern Corridor exits the South Substation to the east for an estimated 6.0 mi (9.7 km), where it turns south along Wilmot Road and parallels the existing Citizens 115-kV transmission line (east of the community of Sahuarita and west of the community of Corona de Tucson). The Eastern Corridor continues south for another 6.5 mi (10 km) before reaching the turning point of the Citizens Communication Company (Citizens) existing transmission line alignment. At this point, the Eastern Corridor continues to parallel the Citizens transmission line southwest for an estimated 18.4 mi (29.6 km) to the vicinity of Amado-Montosa Road. Leaving the Citizens transmission line, the Eastern Corridor turns southwest for an estimated 2.9 mi (4.7 km) and crosses I-19. At this point, the Eastern Corridor joins TEP's Central Corridor and turns south along the existing EPNG pipeline ROW an estimated 1.0 mi (1.6 km) west of I-19 through Tubac and Tumacacori before entering the Coronado National Forest. Within the Coronado National Forest, the Eastern Corridor is identical to TEP's Central Corridor. The Eastern Corridor follows the EPNG pipeline ROW through the Tumacacori and Atascosa Mountains, and turns southeast an estimated 2.8 mi (4.5 km) north of Peña Blanca Lake. At a point northwest of the Gateway Substation, the Eastern Corridor rejoins the Western Corridor, which is also being considered for further analysis. From the point of intersection, the Eastern Corridor follows the Central and Western

Corridors to the Gateway Substation and the international border approximately 3,300 ft (1,006 m) west of Arizona State Highway 189 in Nogales, Arizona.

On July 3, 2002, TEP wrote a letter to DOE requesting that the Eastern Corridor alternative, originally proposed by TEP and included in the Notice of Intent (see Section 1.3, Public Participation), be removed from further analysis in the EIS (TEP 2002a). The following summarizes the reasons TEP gave for its request:

1. The route does not provide sufficient reliability for a second feed into Nogales, Arizona. Because the Eastern Corridor parallels the existing Citizens transmission line to Nogales, Arizona for approximately 20 mi (32 km), a single event such as a wildfire could cause the loss of both transmission lines, completely cutting off electricity transmission to Nogales, Arizona.

2. Encroachment along this route would necessitate many property condemnations to develop an adequate ROW. A combined ROW of at least 300 ft (91 m) would be required where the Eastern Corridor parallels the existing Citizens transmission line. Given the houses near the existing transmission line, approximately thirty or more parcels of land would be purchased and condemned.

3. Construction of the Eastern Corridor would require many lengthy outages of the existing Citizens transmission line, given its proximity, thereby cutting off transmission to Nogales during construction.

4. This route is more visually obtrusive than the Western or Central Corridors as expressed by residents of Green Valley, Tubac, and Tumacacori at DOE public scoping meetings and Arizona Corporation Commission (ACC) hearings for the proposed project.

TEP's decision not to pursue the Eastern Corridor alternative renders it infeasible, and DOE, in consultation with the cooperating agencies, has removed this alternative from further consideration in the EIS.

Council on Environmental Quality (CEQ) regulations (40 CFR 1502.14) require Federal agencies to analyze only alternatives that are reasonable, that is, technically and economically practical and feasible. The rule of reason governs which alternatives the agency must discuss and the extent to which it must discuss them. Where a Federal Agency is the proprietor of a proposed project, it will consider the range of reasonable alternatives. However, where a proposed action is advanced by a non-Federal applicant, such as TEP, seeking a permit for a project, an agency ordinarily need not redefine the applicant's proposal or select alternatives that change the applicant's goals (*Citizens Against Burlington, Inc. v. Busey*, 938F.2d 190 [D.C. Cir.], *cert denied*, 502 U.S. 994 [1991]).

Because TEP has asserted that it does not want to pursue a given alternative route and DOE will not decide otherwise, it would be a waste of time and resources to evaluate an alternative that the applicant rejects. Accordingly, DOE has removed the Eastern Corridor from further analysis in the EIS. The applicant bears the risk that if it changes its mind in the future and again proposes the Eastern Corridor alternative, additional environmental review would be required.

**I-19 Corridor.** The I-19 Corridor leaves the South Substation westerly adjacent to the existing TEP 345-kV transmission line until it crosses I-19, where it turns south and continues approximately 46 mi (74 km) to the Mariposa Road exit in Nogales, Arizona, and then turns west to the Gateway Substation. The predominant considerations for eliminating this alternative from further analysis centered on the visual impacts through densely populated areas, and the potential impacts to cultural resources, given the proximity of a majority of the alternative route to the Santa Cruz River. Other considerations included safety and the interruption of I-19 traffic during construction.

**East Central Corridor.** The East Central Corridor follows the existing TEP 138-kV transmission line from the South Substation to the east and south until it reaches the Green Valley Substation at Whitehouse Canyon Road and the Old Nogales Highway, where it continues south along the railroad to the Pima County and Santa Cruz County boundary. At this point, it turns away from the railroad and proceeds to the southeast until it intersects the existing Citizens 115-kV transmission line at the turning point east of Amado. The alternative then proceeds southeasterly adjacent to the 115-kV line for an estimated 5 mi (8 km) before heading southeast toward Solero Canyon Road skirting the recreation area at Lake Patagonia an estimated 1.2 mi (1.9 km) west of the dam. The alternative proceeds south parallel to the eastern city limit of Nogales, until reaching State Route 82, where it turns and parallels the highway to the southwest for an estimated 2.5 mi (4.0 km) into Nogales. The predominant considerations for eliminating this alternative from further analysis were the impacts on the agricultural areas in the northern segments as the transmission lines would restrict aerial pollination and pest control, the close proximity to existing and proposed residential developments in the Sahuarita, Green Valley, Solero Ranch, and Nogales suburbs, and the hazard potential and height restriction adjacent to the Nogales International Airport.

**Southeast Corridor.** The Southeast Corridor leaves the South Substation to the east for an estimated 6.5 mi (10 km) before heading south along Wilmot Road, where it meets and parallels the existing Citizens 115-kV transmission line. The corridor follows this alignment for an estimated 5 mi (8 km) before both turn southwest for another 18.2 mi (29.3 km) then turn southeast. From this point, the corridor follows the East Central Corridor. This corridor was eliminated from further analysis for the same considerations as the East Central Corridor except that the impact to the agricultural areas was somewhat less and there were fewer residences in the Sahuarita and Green Valley area.

**South 115-kV Connection.** The South 115-kV Connection route provided an alternative within the southern portion of the study area. It could be a sub-route for any of the preceding routes from the point where the existing Citizens 115-kV transmission line turns southeast east of Amado. From the turning point, it goes approximately 5 mi (8 km) south by southeast and then turns south immediately adjacent to the 115-kV transmission line through low-density residential areas east of Tubac and Tumacacori. Further to the south, the route intersects the railroad and bears to the southeast as it enters Rio Rico. From this point, approximately 14.2 mi (22.8 km) north of Nogales, the route alternatively traverses residential development and riparian areas adjacent to the Santa Cruz River. This route was dismissed from further analysis because of the anticipated difficulty in acquiring adequate ROW within the Rio Rico and Nogales areas due to the potential impacts to the riparian areas and habitat, along with the visual impact to the areas east of Tubac and Tumacacori.

**Construction of a Power Generating Station Near Nogales.** This alternative would involve the construction of a new power generating facility within Santa Cruz County, in the proximity of Nogales and the I-19 corridor. This alternative was eliminated from further analysis because it would not fulfill TEP's purpose and need of assisting Citizens in meeting ACC Order No. 62011 that includes a requirement to build a second transmission line to serve customers in Santa Cruz County by December 31, 2003.

**Combining the Proposed 345-kV Transmission Line with Existing Lower Voltage Transmission Lines.** This alternative would involve combining the proposed 345-kV transmission line with existing lower voltage transmission lines onto a single set of support structures to minimize the creation of new utility ROWs. The existing lower voltage transmission lines in the vicinity of TEP's proposed project, as detailed in the existing infrastructure map shown in Figure 3.11-1, include TEP's 46-kV and 138-kV transmission lines, Arizona Electric Power Company's 230-kV transmission line, TRICO Electric Cooperative, Inc.'s 69-kV transmission line, and Citizens' 115-kV transmission line. This alternative was eliminated from further analysis for the following reasons. The lower voltage transmission lines would be

"underbuilt" beneath the 345-kV transmission lines, thus requiring the height of the proposed 345-kV structures to increase at least 30 ft (9.2 m), resulting in increased impacts to the viewshed. Combining different transmission lines onto a single set of support structures would mean that a problem with one structure would affect multiple transmission lines, thus potentially decreasing electrical reliability.

### 2.1.5 No Action Alternative

CEQ regulations require that an agency "include the alternative of no action" as one of the alternatives it considers (40 CFR 1502.14[d]). In the context of this EIS, "no action" means that TEP's proposed transmission line is not built. For DOE and the cooperating agencies, "no action" would be achieved by any one of the Federal agencies declining to grant TEP its permission to build in its respective jurisdiction. Thus, in the case of DOE, "no action" means denying the Presidential Permit; for USFS, "no action" means denying the special use permit; and, for BLM, "no action" means denying access to BLM-managed Federal lands. Each agency makes its own decision independently, so that it is possible that one or more agencies could grant permission for the proposal while another could deny permission. Thus, if any agency denied permission for the proposed transmission line, it would not be built. It may be possible that a transmission line would be built on private land and would not cross the U.S.-Mexico border. In that event, no approval by any Federal agency would be required.

## 2.2 CONSTRUCTION AND MITIGATION ACTIVITIES COMMON TO ALL ALTERNATIVES

### 2.2.1 Substation Upgrades and Additions and Fiber-Optic Regeneration Site

The expansion of the existing TEP South Substation, and construction of the Gateway Substation and fiber-optic regeneration site, would be the same for each proposed corridor. The South Substation in Sahuarita (see Figure 1.1–4) would be upgraded and expanded to provide interconnection between a new TEP 345-kV transmission line and the new Gateway Substation west of Nogales. The South Substation would be expanded by an estimated 1.3 acres (0.53 ha) to add a switching device that would connect to the proposed transmission line by moving the fenceline 100-ft (30-m) to the east.

The new Gateway Substation (see Figure 1.1–4) would include a 345-kV to 115-kV power transformer to provide power to the local area. The new Gateway Substation would be constructed within a developed industrial park north of Mariposa Road (State Route 189), an estimated 0.5 mi (0.8 km) east of the Coronado National Forest boundary (Northeast ¼ Section 12, Township 24 South, Range 13 East). The TEP portion of the site (the area that would be graded) is an estimated 18 acres (7.3 ha) and is within the City of Nogales, Arizona. TEP has purchased the substation site and preliminary construction activities have been completed.

Preparation of the new substation and substation expansion would require the following:

- Cut-and-fill grading to level the construction area to a smooth surface using existing soil
- Placement and compaction of soil brought in from offsite, as needed, to serve as a foundation for equipment
- Subsurface grounding grids (buried system of conductors to provide safety for workers)
- Grading to maintain drainage patterns
- Oil spill containment facilities
- Gravel-covered parking areas approximately 20 by 40 ft (6 by 12 m)
- Fences and gates